E/ECA/NRD/CART/172

# SEVENTH UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR AFRICA

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6 - 11 September 1989, Ouagadougou, Burkina Faso

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# REPORT OF THE SEVENTH UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR AFRICA

Ouagadougou, Burkina Faso, 6–11 September 1989

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## A. ATTENDANCE AND ORGANIZATION OF WORK

1. The seventh United Nations Regional Cartographic Conference for Africa was held at Ouagadougou, Burkina Faso from 6 to 11 September 1989, in accordance with ECA Conference of Ministers resolution 602 (XXII) adopted in April 1987.

2. The Conference was attended by 65 representatives and observers from 20 countries, namely, Algeria, Botswana, Brazil, Burkina Faso, Burundi, France, Ghana, Guinea, Kenya, Libyan Arab Jamahiriya, Madagascar, Malawi, Mali, the Niger, Nigeria, Senegal, the United Republic of Tanzania, Togo, Tunisia, the United Kingdom and the United States of America, one United Nations Specialized Agency and 7 intergovernmental or international organizations.

Election of officers

3. The Conference elected the following officers:

| | |
|---|---|
| Chairman: | Mr. André Bassolé, Burkina Faso |
| First Vice-Chairman: | Mr. Walter Juma Absaloms, Kenya |
| Second Vice-Chairman: | Mr. Mohamed Al Ghariani, Libyan Arab Jamahiriya |
| Rapporteur: | Mr. Francis Maxwell Liuma, Malawi |

## B. ADOPTION OF THE AGENDA

4. The Conference adopted the following agenda:

1. Opening of the Conference.
2. Election of officers.
3. Adoption of the agenda and programme of work.
4. Reports of the ECA on:
   - (a) The status of topographical mapping in Africa;
   - (b) Technical assistance and transfer of technology.
5. Advances in techniques in cartography and remote sensing:
   - (a) Satellite geodesy and its applications to the establishment of a common geodetic datum for Africa;
   - (b) Remote sensing and its applications to Africa's socio-economic development programmes;
   - (c) Hydrographic surveying and nautical charting for planning and development of marine resources;

(d) Cartographic technology and African development in the 1990s.

6. Education, training and research in cartography and remote sensing for developing countries.

7. Regional machinery for the co-ordination of linguistic divisions of the United Nations Conference on the Standardization of Geographical Names.

8. Progress reports on:

(a) Report on the implementation of resolutions and recommendations of the sixth Conference.

(b) Country and institutional reports.

9. Any other business.

10. Adoption of the report of the Conference.

11. Closure of the Conference.

## C. ACCOUNT OF PROCEEDINGS

5. In his opening statement, the Minister of Public Works welcomed all participants to Ouagadougou on behalf of the President of the Popular Front and the people of Burkina Faso. In accepting to host the seventh United Nations Regional Cartographic Conference for Africa, his country intended once again to demonstrate its commitment to the Joint Declaration made by the Organization of African Unity (OAU) and the United Nations Economic Commission for Africa (ECA) regarding the irreplaceable value of cartography in development planning. Burkina Faso, he continued, had resolved to exploit its resources for the sole benefit of its working masses and to friendly countries. In that regard, his country's total adherence to the Declaration would focus on: the strengthening and support of all structures relating to cartography and remote sensing; dissemination of related information and documentation for use in all areas where they might be needed; and the proper training of specialists, particularly in remote sensing.

6. Burkina Faso's commitment to the Declaration was both an act of faith and a firm undertaking towards the achievement of the resolutions contained in the Lagos Plan of Action.

7. To cope with the situation as described in the Joint OAU/ECA Declaration, member States had currently, as in the past, compiled a comprehensive inventory and conducted an evaluation of their natural resources with a view to working out the proper ways and means of exploiting them. They were also to proceed with a scrupulous and rational management of their environmental heritage. All that could not be successfully done without cartography which had proved to be, if that needed re-emphasizing, one basic tool for any process of development planning.

8. He welcomed the creation of the African Organization for Cartography and Remote Sensing (AOCRS) which was already doing intensive, discreet and effective work in impressing upon officials at the highest level the importance of the Joint Declaration formulated by the highest political and economic decision-makers of Africa. Finally, he declared the seventh United Nations Regional Cartographic Conference for Africa open and wished the Conference every success.

9. The Under-Secretary-General of the United Nations and Executive Secretary of the Economic Commission for Africa expressed gratitude to his Excellency the President and Head of State of Burkina Faso, and the Government for the excellent facilities made available for the Conference. He expressed delight for the warm hospitality accorded to the participants by the people of Burkina Faso.

10. After retracing briefly the genesis of the United Nations Regional Cartographic Conferences for the African regional commission, he praised the wisdom of an earlier United Nations Regional Cartographic Conference for having proposed the Year of Cartography in Africa which had been commemorated throughout the continent in 1986 and whose impact continued to stimulate Governments to rate cartography and remote sensing high among national priorities. He raised two issues for the Conference to deliberate upon: first, the newly established African Organization for Cartography and Remote Sensing should play a co-ordinating but not a controlling role of the existing regional institutions; and secondly, non-participating countries should join the regional centres at Ile-Ife, Nairobi and Ouagadougou.

11. He concluded by extending a hearty welcome to all participants and wished them a successful Conference.

Cartographic exhibition

12. After the opening ceremony, participants visited a very interesting cartographic exhibition mounted by member States and organizations which displayed their work in cartography and remote sensing. The exhibition also provided showpieces of state-of-the-art technology in the use of satellite imagery, and results of automated cartography.

The status of topographical mapping in Africa agenda item 4(a)

13. The secretariat presented document E/ECA/NRD/CART/125 which dealt with the status of topographic mapping in Africa. The document retraced a sequence of developments involving surveying and mapping activities. It reviewed progress made and setbacks in the development of cartography at national level. An assessment of topographic maps at various basic scales based on available information revealed qualitative and quantitative inadequacies. In discussing the document, general problems and future prospects for African cartography were reviewed. A bright future was forecast subject to the remedial measures being taken by member States individually but, more importantly, collectively.

14. During the discussion, some data appearing in the paper were found incomplete and other organizations offered to provide additional information so as to achieve ECA's optimistic objective for accelerated development of African cartography. Nevertheless, it was hoped that ECA would be able to revise data in the cartographic inventory for

Africa project and distribute the publication and also to report on the progress of the AfriGIS programme at the next Conference.

15. The Conference took note of the document with the necessary amendments.

Technical assistance and transfer of technology agenda item 4 (b)

16. A representative of the secretariat introduced document E/ECA/NRD/CART/132 on technical assistance and technology transfer in cartography and remote sensing. He indicated that the document first considered the technology transfer aspects in general and then went on to propose a technical assistance programme for technology transfer in cartography and remote sensing.

17. During the ensuing debate, the Conference congratulated the secretariat for having included on its agenda an item of such vital importance as technical assistance and technology transfer. The Conference accordingly made four recommendations on:

(a) The impression by ECA on decision-makers of the importance of making full use of cartography and remote sensing in their development planning and programming. In other words, member States were to be sensitized to the issue of technology transfer in the matter of cartography and remote sensing. ECA had a very important role to play in that regard;

(b) The mobilization of the international community, especially those countries which possessed cartographic and remote sensing technology, to spare no effort in making African countries benefit from and take advantage of research findings in this area. Every strategy and machinery was to be devised to make African countries benefit in their development, planning and programming from the advantages derived from the use of advanced cartographic and remote sensing technology;

(c) The need for bilateral or multilateral co-operation on a South-South as well as a North-South basis; and

(d) The need for a special effort to be made to strengthen training, educational and regional institutions in the area of technology transfer.

18. The Conference took due note of the four recommendations.

Satellite geodesy and its applications to the establishment of a common geodetic datum for Africa agenda item 5 (a)

19. At the request of the secretariat, Dr. Chedly Fezzani introduced document (E/ECA/NRD/CART/129) entitled "Satellite Geodesy and its application to the establishment of a common geodetic datum for Africa". According to the author, having a unified and universally acceptable reference system of a utilitarian nature would be a remarkable way to contribute to the judicious use of geographic information to promote Africa's development at the national, subregional and regional levels. It was important, at the present time, to make the best use of space technology and to ensure that national cartographic institutions in particular absorbe such technology. The paper was confirmed to those general aspects which lent themselves to multiple applications and which could

be used to promote the speedy establishment and densification of national networks, on the one hand, and that of a unified reference system for Africa on the other.

20. Among the space-based geodetic technologies which played a major role in the establishment of geodetic networks could be established by the use of the Doppler observation survey method and that of the Global Positioning System currently being developed. Both techniques allowed for the determination of three-dimensional co-ordinates (X,Y,Z) from a point in a reference system relative to the earth's centre of gravity.

21. During the debate which followed, particular emphasis was laid on the need to co-ordiate the efforts being made by the African countries in satellite geodesy and particularly in the move from a multifarious to a unified network. Cartography was to be made an integral part of development planning and programming.

22. The representative of the African Development Bank (ADB) stated that, in collaboration with the World Bank and UNDP, his organization had been supporting certain African projects dealing with cartography and remote sensing; the International Hydrogeological Map of Africa project being an example. ECA had an important role to play in co-ordinating and focusing thrust of the efforts being made by existing institutions in Africa.

23. The representative of RCSSMRS stressed the need for the training of skilled manpower if satellite geodesy and its applications to the establishment of a common geodetic datum for Africa were to be mastered.

24. The Conference took note of all these observations.

Remote sensing and its applications to Africa's socio-economic development programme
agenda item 5(b)

25. A representative of the secretariat introduced document E/ECA/NRD/CART/127 on potential inputs from remote sensing to the implementation of Africa's economic recovery programmes. The document discussed briefly Africa's natural endowments in spite of which it remained economically backward, adducing this to the low level of technology applications to explore and exploit those natural resources. It gave a brief overview of Africa's economic situation from the time of independence to the adoption of economic recovery programmes. It considered in depth three adopted vibrant programmes - the Lagos Plan of Action (LPA) and the Final Act of Lagos (FAL), Africa's Priority Programme for Economic Recovery (APPER) and the United Nations Programme of Action for African Economic Recovery and Development (UN-PAARED) - the last two spanning the same period 1986-1990 and their prescriptions for revamping Africa's battered economy. The document laid emphasis on the development of agriculture and rehabilitation of the rural sector. The African Remote Sensing Programme launched in 1975 had not, to date, fully contributed to the realization of the aims of the economic recovery programmes which were reaching their final phase. Realizing that Africa's economic survival undoubtedly rested on the development of its natural resources, it enjoined African scientists to undertake purposeful research in the application of remote sensing techniques with a view to its contributing richly to the measures for accelerated implementation of the recovery programmes.

26. The Conference took note of the measures advocated in the document.

Hydrographic surveying and nautical charting for planning and development of marine resources in the African region, agenda item 5(c)

27. The representative of the International Hydrographic Organization (IHO) presented document entitled "Status of Hydrographic Surveying and Nautical Charting in the African Region" (E/ECA/NRD/CART/131). The Conference was informed that hydrographic charts published before 1970 were no longer adequate for modern shipping since ships had increased considerably in draughts. The paper highlighted the current status of nautical charting in the African region. Problems were not only limited to the African maritime and landlocked countries but depended on maritime trade. Of the 45 member States, 32 had no capacity to undertake the nautical charting essential for the development and protection of their Exclusive Economic Zones (EEZ). It was clear that several national ministries and non-governmental organizations were interested in hydrographic surveying for specific purposes. The documents suggested that as a first step, countries interested in the subject should form national hydrographic committees and then develop national, and regional co-operative programmes for the maintenance of equipment and skills development could be handled more economically. The approach was found to be agreeable to IHO which was well disposed to assist such programmes in collaboration with UNDP and UNEP through bilateral agreements. The IHO representative hoped that the Regional Centre for Services in Surveying, Mapping and Remote Sensing in Nairobi, Kenya would extend its operations to include the maintenance of hydrographic equipment and the provision of advisory services. The Conference took note of IHO's offer to assist African maritime States to handle necessary elements in the production of nautical charts at reasonable cost.

28. The representative of Madagascar presented document (E/ECA/NRD/CART/162) on hydrographic activities of his country. The report covered the historical background and provided the progress achieved in mapping coastal and adjacent areas at various times. He described activities leading to the establishment of a hydrographic service with the collaboration of UNDP. He pointed out that following an exhaustive evaluation, it was decided to integrate hydrographic services within the Institut national de géodesie et cartographie (FTM) which will henceforth be responsible for land and marine mapping in Madagascar.

29. Adding to the statement made by the representative of IHO, the observer for France stated that as part of his country's co-operation with Madagascar, a meeting had been held at Antananarivo under the auspices of IHO and the Intergovernmental Oceanographic Commission to consider the situation of Madagascar with regard to nautical charting. In order to facilitate working relationship among the various agencies, the possibilities offered by IHO were praised and recommended. Whilest that organization was fairly represented in Africa, it was worth noting that it had regional hydrographic commissions which met regularly under its auspices. In the preceding year, a conference, which had been attended by most West African countries, Spain, Portugal and France, was held at Cadiz.

30. Regarding the prospects of co-operation in Africa, the difficulties, as singled out by the representative of IHO, doubtless resulted from the military status of most

European hydrographic agencies which used to conduct hydrographic work in Africa. Those agencies formed part of the national navies and drew their resources from the ministries of defense rather than from those ministries which managed international co-operation funds. They therefore confined themselves to purely national assignments. It was perfectly feasible for such an agency as the Service hydrographic et océanographique de la Marine (SHOM) to participate in co-operative activities. However, such a role would need to be sanctioned by the French ministries responsible for international co-operation (which generally did not deal with hydrography). To sensitize those ministries, hydrographic co-operation requests would need to be strongly expressed by the States so that this new need which had yet to be genuinely taken into account could begin to be addressed. With regard to Madagascar, the veterans of SHOM who had learned their craft on the coasts of Madagascar and who remained very much attached to that friendly country, welcomed the prospects for such co-operation.

Cartographic technology and African development in the 1990s agenda item 5 (d)

31. A representative of the secretariat introduced document E/ECA/NRD/CART/130 on "Cartography and remote sensing technology and Africa's development in the 1990s". After describing the paradoxical situation whereby Africa remained the most backward continent in spite of its vast natural resource endowments, he stated that such economic backwardness was partly traceable to the low level of technology applications to locate identify, and exploit those resources.

32. Cartography and remote sensing had a primary role to play in Africa's development during the 1990s. For that to happen, accurate maps would have to be drawn to demarcate national borders, physically develop national territories and implement the projects contained in the strategies of Africa's Priority Programme for Economic Recovery, the Lagos Plan of Action and the African Alternative Framework for Structural Adjustment Programmes for Socio-economic Recovery and Transformation (AAF-SAP). He concluded that cartography and remote sensing could play such role only when the following recommendations were carried out: African nationals should be trained in the various aerospace research institutions on the continent; regional projects such as the ADOS and the African Standardization Gravity Network (ASGN) should be carried out; finally, technical co-operation with those countries that had launched satellites should be intensified. The Conference endorsed the recommendations.

Education, training and research in cartography and remote sensing for developing countries agenda item 6

33. A representative of the secretariat introduced document E/ECA/NRD/CART/128. He stated that the paper described the poor state of cartography and remote sensing education in developing countries. It established the principles and rationale for developing appropriate curricula to meet the manpower needs in developing countries at five training levels - subtechnician, technician, technologist, professional and post-graduate. It discussed the need for the right orientation and emphasis of cartography and remote sensing education in response to the structural manpower deficiency in both the horizontal and vertical directions. After examining the status of research efforts in developing countries, it outlined those areas which stood in dire need of research. The paper stressed the need to utilize several methods of training to educate seven target

beneficiaries including decision-makers on the importance of cartography and remote sensing to development.

34. The paper also suggested a number of solutions for combating the problems that plagued cartography and remote sensing education in developing countries. It advocated the formulation of a visionary manpower training and educational programmes which would lead developing countries to the "promised land" of scientific and technological emancipation and the path to rapid economic recovery and development.

35. The representative of the Overseas Surveys Directorate of the Ordnance Survey, United Kingdom, presented document (E/ECA/NRD/CART/133) concerning training facilities in surveying and mapping for overseas students in the United Kingdom. He declared that the paper contained a catalogue of training facilities at various establishments in the United Kingdom that provided training in surveying, mapping, hydrographic surveying land management, remote sensing and reproduction techniques. The format, duration, qualification and awards were presented in detail in the annexes to the document.

36. During the course of the discussions which followed the two presentations, participants stressed the need for strengthening existing training machinery through the provision of ample resources to regional cartographic and remote sensing centres in particular.

37. They appealed to the developed countries to continue assisting African countries in the training of skilled personnel for cartography and remote sensing.

38. The representative of the International Hydrographic Organization (IHO) informed participants that since its eleventh Conference held in 1977, IHO had acknowledged the urgent need for training people from developing countries in hydrography. The Conference requested IHO to maintain a list of hydrographic training facilities available globally. In association with the Fédération internationale des géomètres (FIG), a comprehensive set of minimum standards of competence for various grades of hydrographic surveyors had been drawn up and was subjected to review annually in order to take account of changing techniques. The Joint FIG/IHO Advisory Board also reviewed the syllabuses of universities and training establishments throughout the world submitted to the Joint Board which awarded international recognition to those courses which met the minimum requirements. Students passing such recognized courses were then issued with international certificates by the educational establishments.

39. IHO Special Publication No. 47, Third Edition, September 1988 listed all hydrographic survey training courses known to exist and indicated the entry requirements, languages used and other details including, where possible, costs and any fellowships available. Although no hydrographic surveying courses were yet available in Africa, courses were available in English, French, Portuguese and Spanish and IHO considered that the courses available were adequate for the relatively small numbers of hydrographers required by developing countries in Africa.

40. After welcoming the interest that the high officials and decision-makers were beginning to show in cartography and remote sensing as a tool for planning, decision making and the management of natural resources, the representative of Madagascar

stressed the urgent need for users to be properly educated with a view to better tailoring cartography products to their needs. Such an effort called for: the integration of cartography and remote sensing education into primary; secondary and higher educational curricula so that users would be in a better position to understand and express their need the professional training of local technicians so that those institutions that produced cartographic data would be able to meet the requirements by adapting themselves to inevitable technological changes; and the basic training of technicians at national, regional and international levels through programmes that reflected the specific conditions prevailing in the developing countries. African countries could not meaningfully develop without proper integration of cartography and remote sensing techniques into their educational systems.

Regional machinery for the co-ordination of linguistic divisions of the United Nations Conference on the standardization of geographical names agenda item 7

41. On behalf of the Africa East Division the representative of Kenya presented the Division's document E/ECA/NRD/CART/136. The document covered national linguistic activities as well as the work of the Africa East Division. As current Chairman of the Division, his country felt concern at the poor participation of a number of members in recommended programmes.

42. Also speaking as a member of Africa East Division, the representative of Madagascar presented document E/ECA/NRD/CART/163 covering activities of the national geographical names authority as well as the country's contribution to the work of the Africa East Division. He proposed that a mechanism be set up for co-ordination of linguistic Divisions in Africa at regional and inter-regional levels. It was envisaged that an appropriate organ should be responsible for the strengthening and co-ordinating the follow up of such activities as in map production at continentwise, subregional and national levels. In this regard, it would ensure rational planning of toponymic priority studies in the continent.

43. The secretariat presented a document entitled "Regional machinery for the Co-ordination of linguistic divisions of the United Nations Conference on the Standardization of Geographical Names" (E/ECA/NRD/CART/142). It informed the Conference about African historical and linguistic problems and the lack of application of procedures recommended by the United Nations with regard to the establishment and consolidation of national geographical names committees. It went on to emphasize the need to reactivate linguistic divisions through co-ordination at regional level. In that regard, the Conference was asked to formulate and propose a machinery that would narrow the gap between Africa's linguistic divisions (as the continent owed it to itself) to help solve African historical, cultural and economic problems from within the continent and at the same time to maintain co-ordination of linguistic divisions' responsibilities within the United Nations system.

44. During discussion of this agenda item, some participants felt that such co-ordination could be entrusted to the newly established African Organization for Cartography and Remote Sensing whose basic role was to co-ordinate cartography and remote sensing activities of the member States. Responding to comments, the secretariat wondered how far such co-ordination could be undertaken by AOCRS, in other words, entrusting the functions of the United Nations Conference on the Standardization of

Geographical Names to an intergovernmental institution. The Conference was advised to seek prior clarification of the legal implications before entrusting the task to AOCRS.

45. After a lengthy discussion of the subject where several views for and against entrusting the responsibility to either ECA or AOCRS were expressed, the Conference called for a resolution to be adopted that would recommend mechanisms and structures to be followed to reactivate the activities of linguistic divisions as well as ensuring their better co-ordination.

46. The representative of the International Hydrographic Organization introducing document (E/ECA/NRD/CART/131), announced the publication by IHO of a listing of geographical terms intended for use on international map series at medium and small scale nautical and navigational charts, that also provides a guide of generic terms of new names of features on the sea bed. It was stressed that each country had the right to decide on names to be used for its territorial waters; however, co-operation with neighbouring States was of paramount importance.

Report on the implementation of resolutions and recommendations of the sixth Conference agenda item 8 (a)

47. The secretariat presented document E/ECA/NRD/CART/126 on the implementation of resolutions of the sixth United Nations Regional Cartographic Conference for Africa. The document provided a brief account of actions taken by ECA to implement specific recommendations and resolutions referred to it. It also touched on the role ECA played in the execution of joint activities emanating from Conference of Ministers resolution 602 (XXII) and those of the seminar and study tour for senior African cartographic officials organized by ECA in the Union of Soviet Socialist Republics in 1987.

48. The implementation of resolutions contained in the above document, fell into three categories, namely those fully implemented, those partially implemented and those not implemented as requested. The document mentioned that some resolutions had been referred to member States or organizations.

49. The document did not attract many comments except the correction that the mission on Tunisia-Chad co-operation had been held in Tunisia and was not the result of the resolution of the sixth Conference. Nevertheless, the Conference observed that resolution 9 (VI) operative paragraph 4 was not implemented and stressing its importance, requested its full implementation and a report on actions taken at the next Conference. It commended the efforts of ECA, AOCRS and the Government of Morocco in the publication of the specimen map on the standardized specification and the Conference called upon member States to comment on the map to enable ECA and AOCRS to analyze the observations prior to the recommended meetings of experts. Commenting on ECA efforts to sensitize policy-makers, it was suggested that ECA should seek the co-operation of various United Nations offices such as the Department of Public Information, UNESCO as well as the United States and France agencies to produce a film on cartography and remote sensing emphasizing its role in development. Copies of the film should be used Africa-wide to sensitize policy-makers, planners and the general public.

Country and institution reports: agenda item 8 (b)

50. The representative of Algeria stated that from 1987 to 1989 and within the context of the current international economic crisis, his country had put more emphasis economy in the management of cartographic and remote sensing activities. The outcome of those efforts had been described in document (E/ECA/NRD/CART.169). Over the last three years, the salient features had been: (i) the introduction of computer-assisted cartography into the preparation of topographic maps at scales of 1:25,000 and 1:50,000; (ii) experimentation with the preparation of topographic maps at the small scale of 1:250,000 using satellite imagery; and (iii) the completion within the current year of a second first-order geodetic survey together with its densification (east to west) across the country over an area with a width ranging from 120 to 150 km.

51. In terms of equipment, the institut national de cartographie installed a computer mainframe of the VAX 11/785 type, an automatic charting centre and a maintenance workshop for photogrammetric equipment. What was more, the Ecole nationale des sciences géodésiques (ENSG) at Arzew had, since 1987, absorbed the Centre national de techniques spatiales (CNTS) and was continuing to train staff, while at the same time conducting research and development aspects in conventional map-making techniques as well as in remote sensing. Finally, the Direction de la [illegible] domaniales et foncières had begun to use computers to process rural and urban cadastral survey data within a ten-year programme.

52. The representative of Botswana, referring to his country's national report in document (E/ECA/NRD/CART/154), stated that the Botswana Department of Surveys and Lands (DSL) had full capability in all categories of cartographic draughting to cope with the increasing volume of work. The Department had not yet required Doppler Survey equipment or GPS position-fixing techniques. Nevertheless, the equipment and techniques were available in the Geological Department (Doppler) and private land survey and air survey firms (GPS). In-house mapping was carried out from receipt of aerial photographs to final plate preparation, i.e., the Department did not have aerial photography and printing capabilities and depended on private firms for the former and the Government printer for the latter. In survey and mapping activities to meet national needs, it was still necessary, due to [illegible] capacity, to contract out surveying and mapping projects through tender. Current cartographic priorities were biased towards the provision of surveyed serviced land for residential, commercial and industrial purposes. This was in addition to normal revision work. Project-oriented large-scale mapping had to be undertaken on the basis of projected plans, but some times on an ad hoc basis depending on circumstances.

53. Development of a requisite and cost-effective modernization policy for productivity enhancement in all categories, coupled with relevant training, was seen to be an essential requirement in order to meet cartographic needs in the country. Training at both technical and professional levels still posed a major problem due to the non-availability of cartographic training institutions in the country and an unwillingness on the part of some countries to take on a substantial number of foreign students. It was only recently that a positive reaction from some friendly southern African countries had been received to DSL's request for training opportunities. The role of cartography, as an essential prerequisite for sound urban and rural planning, land exploitation,

Country and institution reports agenda item 8 (b)

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53. Development of a requisite and cost-effective modernization policy for productivity enhancement in all categories, coupled with relevant training, was seen to be an essential requirement in order to meet cartographic needs in the country. Training at both technical and professional levels still posed a major problem due to the non-availability of cartographic training institutions in the country and an unwillingness on the part of some countries to take on a substantial number of foreign students. It was only recently that a positive reaction from some friendly southern African countries had been received to DSL's request for training opportunities. The role of cartography, as an essential prerequisite for sound urban and rural planning, land exploitation,

59. Among recent innovations in the Ghana Survey Department were the introduction of compulsory land-title registration, and the establishment of clearing along the international boundary between Ghana and Cote d'Ivoire. The exercise involving clearing both sides of the demarcated frontier line, of trees and bushes, was in principle for the purpose of curbing cross-border illicit trade that often disturbed peace along the common border. Another document E/ECA/NRD/CART/169 focused on remote sensing activities of Ghana.

60. The representative of Kenya introduced document (E/ECA/NRD/CART/151) on cartographic and related activities in Kenya. The document reviewed cartographic activities in Kenya and listed the achievements in cartography, survey and the production of maps, plans and charts and related activities undertaken by the Department of Survey since 1984. Emphasizing that the pace of Kenya's national development depended heavily on reliable information in cartographic documents which also contributed to foreign exchange earnings. Such documents were used for the planning of land use, civil engineering design, land registration, development planning administration and national defense and tourism.

61. Malawi presented a situation report covering the period 1984-1988 in document entitled (E/ECA/NRD/CART/171) "Cartographic Activities in Malawi". It focused mainly on the achievements in the areas of institutional growth, acquisition of modern equipment and manpower development of the national cartographic institutions. The Conference was informed that the country had complete coverage of maps at the basic scale of 1:50,000 and the derived scale of 1:250,000. At the same time it had embarked on converting current topographical series from empirical units to a new metric map series. Notable among its acquisitions were an in-house mini-computer, modern reproduction facilities and a fully fitted modern hydrographic launch for hydrographic surveys on Lake Malawi.

62. The Conference took note of the report and commended the country for its efforts, more especially for the involvement of its local staff in research and development.

63. The representative of Mali introduced a document entitled "Equipment cartographique du territoire du Mali" (E/ECA/NRD/CART/153). He stated that the Direction nationale de la cartographie et de la topographie had been set up to promote, co-ordinate, control, execute and commission all geodetic work and publish maps to meet national needs for cartographic, cadastral and remote sensing documentation. It also played a role as the national centre for cartographic documentation and information. He drew the attention of the Conference to the awareness of the Malian Government to the role of cartography in development in the country as a result of which resources are being provided for projects in research and application of remote sensing techniques as well as introducing the technology at secondary schools and technical school programmes. He concluded by mentioning that the National Committee of Remote Sensing and the Commission for Cartography in Mali were being merged.

64. The representative of the Niger stated that the entire territory of his country had been mapped at the scales of 1:100,000 and 1:200,000. Ten per cent of the country had been mapped at the scale of 1:50,000 and this accounted for 25 per cent of agro-pastoral land. For nearly 15 years, the Niger had set up as its major objectives the achievement

in food production, of self-sufficiency, desertification control and natural resources development.

65. In the quest to attain those objectives, the Niger had drawn up a five-year development plan whose cartography component had received special attention. This was because the country had become aware of the fact that human and natural resources whether above or below ground could not be developed sufficiently without maps. The resolve to give cartography its rightful place had even more recently found expression in the expertise which France was currently providing at the request of the Niger to set up a national geographic institute.

66. The representative of Madagascar stated that the substance of his intervention could be found in document E/ECA/NRD/CART/162. During the period under review, the economic difficulties his country was experiencing had not enabled it to resume its cartographic programmes realize. However, the country was beginning to realize the importance of developing a coherent national cartographic policy for the implementation of national development policies, plans and programmes. No natural resource planning, prospection, exploitation and utilization of natural resources could take place without accurate, appropriate, reliable scientific data mostly presented in the form of maps. A fact-finding and needs-assessment mission had been mounted to determine the functions to be entrusted to the national cartographic agency. It was also necessary to specify the role that the State should play in this undertaking and to identify the measures and resources to be invested in the programme which will have been formulated as a result.

67. The representative of Nigeria who had earlier expected the arrival of the head of his delegation, which by then had not shown up was obliged to give a report of his country focusing on remote sensing: its role, character and programmes in Nigeria. Significant in the report was the fact that remote sensing administration was not in the same national institution as that which looked after cartographic matters. In this regard, the Federal Ministry of Science and Technology is responsible for remote sensing programmes in Nigeria. Since 1983, sensitization seminars were conducted for policy-makers and potential users of remote sensing technology. The National Remote Sensing Centre at Panyam near Jos, together with its functions, were taken over by Government and will be the focal point of remote sensing activities in Nigeria.

68. The representative of Senegal stated that since the holding of the sixth Regional Cartographic Conference for Africa at Addis Ababa in 1986, the main achievement of his country had been to adopt a national cartographic programme which went with the mapping of the country to a basic scale of 1:50,000. The geodetic network was being densified and accurate horizontal and vertical controls instituted. Forty-three topographical maps at the basic scale of 1:50,000 were being drawn and a national remote sensing centre established. A hydrogeological map of Senegal was being prepared at the scale of 1:50,000 at the same time as a series of ecological charts were prepared.

69. The representative of the United Republic of Tanzania stated that about 940,000 km² of Tanzania's dry land had been mapped at a scale of 1:50,000. Many of the 1,300 maps prdoced at a scale of 1:50,000 were over 10 years old. The country therefore intende to embark on a major revision of these maps: thereafter the same exercise will be conducted for the 1:250,000 map series.

70. It was also reported that the present pre-occupation of Tanzania in the field of surveying and mapping is cadastral work. The target and as a top priority is to provide each of over 8,000 group villages with land titles. At the time of reporting, some 960 such villages were completely surveyed employing pre-marking technique on air photographs and providing further controls by Doppler positioning method.

71. The representative of Tunisia presented document (E/ECA/NRD/CART/162) covering the activities of Office national de cartographie et science national de télédétection in surveying, mapping and remote sensing. The document revealed considerable advances not only in map production but also in the introduction of new technologies and equipment as well as additions to the country's enviable manpower in various sectors of cartography and remote sensing.

72. The representative of Guinea indicated that his country had made tremendous efforts to advance cartographic and remote sensing activities notwithstanding the paucity of national resources. He made a special appeal to ECA, OAU and AOCRS together with the international community to assist his country to acquire better equipment, strengthen its infrastructure for cartography and remote sensing, train staff and update its data.

73. The representative of the Libyan Arab Jamahiriya informed the Conference that since the creation of the Survey Department of Libya in 1971, efforts of his country's activities in cartography and remote sensing were geared towards training staff at all levels as well as putting in place a massive co-ordinated national cartographic programme based on a modern geodetic network established through space geodesy. Since the last Conference, the Survey Department of Libya had acquired an aircraft for low-altitude air photography. In the field of remote sensing, an experiment was being conducted to produce 1:50,000 topo maps using SPOT imagery. If the experiment yielded acceptable results, it would be integrated into the normal mapping programme for topo maps between 1:50,000 and 1:250,000 scales.

74. On behalf of the Ethiopian delegation which had not yet arrived in Ouagadougou, a member of the secretariat presented document (E/ECA/NRD/CART/143 on "Cartographic activities in Ethiopia (1986-1989)". The document indicated that surveying and mapping activities are undertaken by Ethiopian Mapping Authority (EMA) which is an autonomous government organization providing services to both government and private organizations. The document highlighted, the fact that at present, the Government was giving full support to the strengthening of the Authority.

75. Regarding EMA's operations, the extension and intensification of the geodetic control network was proceeding at an average rate of 30,000 km² per year. Where mapping projects in isolated regions require survey controls, these are provided by using local controls and Doppler points. As far as topographical mapping was concerned, 29 per cent of the country was covered by 1:50,000 map sheets mainly in populated areas. Demand for large scale maps for town planning, irrigation and other engineering projects was increasing. In co-operation with other Ministries, it was possible to publish a wide variety of thematic maps notably among which soils maps, land-use map, geological and the first multicolour national atlas of Ethiopia.

76. The Authority has modern surveying, photogrammetric, cartographic and map reproduction equipment, orthophoto system and medium-capacity electronic computers. In order to meet the demand for maps, the Authority had to increase production by engaging additional staff on contract and by introducing a work-by-shift system. The participants commended Ethiopian's achievements as indicated in the document.

77. The representative of France stated that his country had always co-operated with Africa in cartography and remote sensing. Such co-operation had taken the form of pilot projects in which such new cartographic and remote sensing technologies as Landsat and SPOT imagery were used. Training had been provided by France to foreign students and professionals admitted to the Ecole des sciences geographique de St. Mandé. France also participated in the work of African regional centres by providing appropriate manpower training in cartography and remote sensing. Training had also been provided during the course of specific projects.

78. The representative of the United Kingdom stated that his country had been assisting such African countries such as Kenya, Lesotho, Liberia, Malawi, the Seychelles and Sierra Leone to exploit satellite data for mapping purposes. Documents E/ECA/NRD/CART/135 and E/ECA/NRD/CART/144 provided more comprehensive information on what his country had been doing for Africa in cartography and remote sensing. The United Kingdom stood ready to lend its support to hydrographic activities being carried out on the coasts of Africa by providing appropriate information.

79. The representative of the United States of America stated that his country's various cartographic and remote sensing activities were comprehensively described in document E/ECA/NRD/CART/155. He added that, currently, with the help of regional centres such as AGRYHMET in the Niger, his country was monitoring vegetation.
Conditions in the West African subregion through the use of satellite information received fortnightly.

80. The representative of the Regional Remote Sensing Centre, Ouagadougou, presented documents E/ECA/NRD/CART/145 and 160 on the work in which an outline of the Centre's various training and user assistance activities and remote sensing products were given. He said that the Centre was situated on a 30-hectare piece of land which would accommodate the ground-receiving station. The Centre needed the unswerving support of member States as it would be the first of its kind in the region to be called upon to provide monitoring services in the event of locust invasion, drought and other phenomena. Further technical assistance and co-operation was anticipated. One problem with graduates of CRTO was that a number of them were not gainfully employed on their return home. The second document, E/ECA/NRD/CART/160, presented a study on the evolution of vegetation over Burkina Faso using satellite imageries for periods 1975 and 1987 over the same study areas with ground truth cross check with airphotographs where four kinds of vegetation classification were obtained and details of the study were given in the document.

81. The document of the Regional Centre for Training in Aerospace Surveys (RECTAS) at Ile-Ife, Nigeria (E/ECA/NRD/CART/128) provided an exhaustive account of its training and research programmes as well as the number of trainees. With regard to research, the representative of RECTAS read out an extract of a research result in a "memoire" prepared by one of its staff contained in document E/ECA/NRD/CART/147.

82. The representative of the Regional Centre for Services in Surveying, Mapping and Remote Sensing (RCSSMRS) of Nairobi, Kenya presented four documents: (i) Use of Doppler positioning methods in cadastral surveys and boundary demarcation (E/ECA/NRD/CART/138); (ii) The role of RCSSMRS in remote sensing technology transfer in Eastern and Southern Africa (E/ECA/NRD/CART/139); (iii) Repair and calibration of survey instruments in the Eastern and Southern African subregion (E/ECA/NRD/CART/140); (iv) Modern trends in mapping (E/ECA/NRD/CART/141). In describing the work of the Centre, he stated that the Engineering Department together with its training elements mainly dealt with maintenance, calibration and repair of survey, photogrammetric and reproduction equipment. The service saved member States valuable foreign exchange and earned revenue for the Centre; The Remote Sensing Department conducted training at various levels but concentrated on specialized aspects as well as providing user assistance to Governments and the private sector. The Geodesy Department conducted aerial surveys among its operations. The fourth document explained achievements in mapping from satellite imagery. He ended by expressing gratitude to the 12 contracting States, various governments and organizations for the invaluable help that had facilitated the growth of the Centre.

83. The representative of the African Organization for Cartography and Remote Sensing (AOCRS) described the major scientific and technological activities conducted by his organization since the sixth United Nations Regional Cartographic Conference of Africa held at Addis Ababa in November 1986. Document E/ECA/NRD/CART/148 provided a detailed information on the African international hydrogeological mapping programme, the standardization of African topographic map specifications and the establishment of a remote sensing centre for the North African subregion.

84. The second document (E/ECA/NRD/CART/149) presented a picture characterizing the ruined economies of the majority of African countries and implications in the field of earth sciences. The document suggested pragmatic use of satellite data and making use of geographic data banks and training. It concluded by urging that
national plans should be adopted to priorities and employing the best use of appropriate technologies.

85. The representative of the African Development Bank (ADB) indicated that the Bank was very much involved in cartographic and remote sensing activities in Africa. ADB has given a grant of $US 1.5 million to Comite interafricain des etudes hydrographic (CIEH) for hydrological studies; and a sum of $US 150,000 to the African Organization for Cartography and Remote Sensing for hydrogeolocial mapping project.

86. The representative of the International Hydrographic Organization (IHO) said that the objectives of the IHO were firstly to co-ordinate the activities of the world's national hydrographic offices and secondly, to secure the greatest possible uniformity both in the ways in which hydrographic surveys were carried out and in the production of nautical charts and publications. Thirdly, IHO provided advisory services to developing countries wishing to develop hydrographic capabilities. In order to achieve that objective, IHO's 57 member States had allocated funds to enable visits to be made to any developing country - whether it was an IHO member State or not and at no cost to the requesting country (apart from internal travel costs) in order to provide advice on the most suitable way to set up hydrographic capabilities.

87. The representative of the Féderation internationale de geométres (FIG) said that his organization was prepared to assist African institutions to develop cartography. Most of the activities conducted by FIG would be found in the brochure that had been distributed to participants. He requested that in order to guide participants at future Regional Cartographic Conferences for Africa, ECA should publish the United Nations definition of Cartography as an aide-mémoire.

88. The Conference expressed appreciation to institutions participating in the Conference for the valuable contributions made by them towards development of cartography in Africa.

Any other business agenda item 9

89. As all the major issues affecting development of cartography and remote sensing in Africa were exhaustively discussed under the relevant substantive agenda items, there were therefore no other issues discussed under this agenda item.

Adoption of the report of the Conference agenda item 10

90. The Conference examined the draft report, paragraph by paragraph, and effected the necessary amendments after which it was adopted by consensus. The Conference adopted 3 Recommendations and 5 resoulutions attached to this report.

Closure of the Conference agenda item 11

91. At the closing session, the Conference adopted by acclamation a vote of thanks to His Excellency Comrade Captain Blaise Compaore, the President of the Popular Front and Head of State and Government of Burkina Faso, the revolutionary people and Government of Burkina Faso, for the warm hospitality accorded to all the participants, the prevailing cordial atmosphere under which the Conference was held, the exemplary performance of the bureau in the handling of the proceedings of the Conference and, in particular, the excellent arrangements which facilitated the successful organization of the Seventh United Nations Regional Cartographic Conference for Africa which is attached to this report. Thereafter, there was the usual exchange of courtesies following which the Chairman declared the Conference closed.

Annex I

D. RECOMMENDATIONS AND RESOLUTIONS

The seventh United Nations Regional Cartographic Conference for Africa organized under the auspices of the United Nations Economic Commission for Africa was held at Ouagadougou, Burkina Faso from 6 to 11 September 1989 and was attended by representatives from African and other countries, international and regional organizations.

The Conference provided a forum for the fruitful discussions and for a review of developments of the state-of-the-art technologies in cartography and remote sensing.

Following the discussions held during the Conference, a number of recommendations and resolutions were made on the basis of the following consideration:

(a) The need for the Africa region in the spirit of the African Alternative Framework to Structural Adjustment Programmes for Socio-economic Recovery and Transformation (AAF-SAP) and working through regional institutions to intensify inter-country co-operation in the design, implementation and monitoring of national and regional cartographic and remote sensing programmes;

(b) The need for a global strategy concerning national capabilities for the development, use and transfer of cartographic and remote sensing technologies;

(c) The need for the elaboration of joint venture programmes likely to interest national private sector groups forming partnership among themselves or with foreign private groups or such private sector groups joining with the public sector. Special attention to be paid to the role of the private sector in the transfer of cartographic and remote sensing technology;

(d) The need for South-South and North-South co-operation supported along by bilateral or multilateral machinery on the basis of mutual interest;

(e) The need for financial systems backed by member States for the development and use of cartography and remote sensing for development purposes.

In this respect, the Conference recommended as follows:

I. RECOMMENDATIONS

1. Concerning participants and heads of national cartographic institutions

Participants in the seventh United Nations Regional Cartographic Conference for Africa and heads of national cartographic institutions should be dynamic and active in impressing upon their governments of the urgency for ensuring the implementation of the recommendations as set out below:

(a) By encouraging their countries which have not yet become participating members to join and for participating governments to resolutely support the African

regional institutions and the African Organization for Cartography and Remote Sensing they have established to serve them in cartography and remote sensing;

(b) By impressing upon their respective governments the need for centrally co-ordinating scientific and technical activities in the use of cartographic and remote sensing technology for development;

(c) By maintaining constant contact with ECA and the African Organization for Cartography and Remote Sensing and as well as other regional institutions thereby exchanging information on progress made in the implementation of the measures advocated by the Conference.

2. Concerning member States of ECA

The Conference recommends that African States should:

(a) Incorporate cartography and remote sensing into their development planning and programming as a matter of priority;

(b) Take the necessary steps to develop information systems and networks for the identification, selection and acquisition of appropriate cartographic and remote sensing technologies for national development;

(c) Take steps to introduce into their technical education system courses on the use of cartographic and satellite data and the development and transfer of cartographic and remote sensing technology. To encourage African experts to participate in the design of standard syllabuses for the above courses at secondary and university levels;

(d) Endeavour to set up national research councils and consultancy firms in cartography and remote sensing where they do not exist.

3. Concerning ECA and OAU

ECA and OAU, with the assistance of funding agencies such as UNDP, the World Bank, the African Development Bank, co-operating agencies and countries and such institutions as IHO, to assist African countries, on request, to set up and strengthen:

(a) South-South and North-North co-operation machinery through the organization of study tours, seminars and workshops. ECA and OAU should identify African experts in cartography and remote sensing and the countries belonging to the economic North or South groupings which will be brought together to set up or strengthen such co-operation;

(b) Joint ventures by identifying private or public sector partners, to undertake prefeasibility and feasibility studies and execute joint venture projects in cartography and remote sensing;

(c) Manpower training institutions to enable them to handle cartographic and remote sensing technology issues as well as technological information networks; and

(d) Structures for scientific and technological development through the provision of technical assistance and co-operation.

Resolution 1

EIGHTH UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR AFRICA

The Conference,

Noting that the participants in the seventh United Nations Regional Cartographic Conference for Africa considered sessions of the Conference highly informative and had provided the forum for exchange of useful experiences, it was therefore desirable that the Regional Cartographic Conferences to continue in order to develop Cartographic and remote sensing capabilities in the region,

Noting further the general desire to increase the effectiveness of the Conferences and conscious of the need for active involvement of countries of the region in the preparation of technical documents for the Conference and ensuring better representation at the Conference itself,

Recalling operative paragraph 1 of resolution 2(V) of the fifth United Nations Regional Cartographic Conference for Africa,

1. Recommends that the eighth United Nations Regional Cartographic Conference for Africa be held at the headquarters of ECA in the second half of November 1982;

2. Urges members of the organizing committee established as per resolution 2(V) of the fifth United Nations Regional Cartographic Conference for Africa to resume their responsibilities as laid down and further urges member States wishing to host the next Conference to make necessary preparatory gestures in the next 12 months in order to enable the said committee to meet at least one year prior to the holding of the Conference;

3. Recommends that the ECA secretariat following the meeting of the co-ordinating committee should call for papers for the eighth Conference and urge every country to provide their reports well in advance of the Conference,

4. Further recommends that:

(a) The United Nations Department of Technical Co-operation and Development and ECA should continue to sponsor the preparation of the background papers for future United Nations Regional Cartographic Conferences for Africa, as recommended in resolution 2(V) operative paragraph 2;

(b) The selection of authors for background papers should be made in consultation with regional, international, scientific and professional organizations;

Resolution 2

CO-ORDINATION OF LINGUISTIC DIVISIONS FOR THE STANDARDIZATION OF GEOGRAPHICAL NAMES

The Conference,

Noting that standardized geographical names form the backbone of reliability of topographical maps which in turn is the basis for the preparation of thematic map and charts as an important inputs into socio-economic development endeavours.

Further noting with regret the lack of dynamism in the functioning of linguistic divisions in Africa characterized by lack of exchange of information among countries, national names committees and between linguistic divisions, lack of necessary legal institutionalization and establishment of national geographical names authorities within the countries of member states.

Mindful of the need to strengthen efforts towards the establishment of such authorities where they do not exist and dynamize national linguistic committees as well as linguistic divisions as a measure of lending support to United Nations and other agencies to provide the necessary funding for training workshops in toponymy for developing countries.

Aware of the urgent need to provide a machinery for the better co-ordination of linguistic regional programmes and inter-divisional activities.

1. Requests governments of member States to establish geographical names authorities where they do not exist and provide the necessary legal status and backing for their operations and strengthening;

2. Calls upon members of each linguistic division in the Africa Region to take urgent measures to reactivate their activities;

3. Further requests the Executive Secretary of ECA in consultation with appropriate United Nations authorities and in close collaboration with the Secretary-General of the African Organization for Cartography and Remote Sensing to assume the functions of co-ordinator of linguistic divisions in Africa;

4. Requests the Secretary-General of the United Nations through the ECA Conference of Ministers to facilitate the establishment of a new linguistic sub-division of the Arabic-speaking Division for countries in North Africa.

5. Urges all countries undertaking nautical charting to take note of the provision of the Convention on the Law of the Sea in particular concerning the Exclusive Economic Zone (EEZ) when preparing charts for their EEZ that the nomenclature of under-sea features be included in the standardization of geographical names programme.

Resolution 3

STRENTHENING OF NATIONAL CARTOGRAPHIC AND REMOTE SENSING CAPABILITIES

The Conference,

Recalling paragraph 87 of Chapter III of the Lagos Plan of Action and the Final Act of Lagos concerning the strengthening of existing national cartographic and remote sensing institutions and the creation of new ones where none exist.

Noting that the Government of the Republic of Guinea has set up a national geographic institute since 1979 which is yet to function effectively for lack of adequate equipment, manpower, and basic cartographic data which still being held outside the country,

Noting also that the Republic of Niger is currently up a National Geographic Institute;

Requests ECA, OAU and other, international and African organizations to assist:

(a) The Government of the Republic of Guinea to strengthen the National Geographic Institute, in the training of manpower, and provision of cartographic and remote sensing data and equipment;

(b) The Government of the Republic of Niger in the establishment of the National Geographic Institute; and

(c) Countries in Africa which have similar needs.

Resolution 4

HYDROGRAPHIC SURVEYING AND NAUTICAL CHARTING SERVICES

The Conference,

Recognizing that large areas of continental shelves, exclusive economic zones and inland lakes remain inadequately, or are not at all surveyed and that many nautical charts are obsolete and inadequate.

Also recognizing that the lack of adequate surveys and nautical charts seriously retards the economic development of African maritime counties not only in respect of the safety of shipping but also in the protection of the marine environment and coastal ecology, the improvement of port facilities, the development of fishery industries and the exploitation of offshore hydrocarbons and other non-renewable marine resources, the growth of tourism and recreational maritime activities and the delimitation of offshore maritime boundaries,

Noting that there is a lack of data on the available hydrographic resources in the African region,

Aware that the International Hydrographic Organization is willing to provide expert advice on the development of national and regional hydrographic services, upon request, by developing countries, and taking into account the requirements and the inadequacy of existing resources in each developing country or region,

1. Recommends that maritime countries in the African region which have not already done so should request expert advice from the International Hydrographic Organization and should also take steps to form as soon as possible a National Hydrographic Committee;

2. Further recommends that the Economic Commission for Africa, in conjunction with the African Organization for Cartography and Remote Sensing and the International Hydrographic Organization, should develop a project to appoint regional hydrographic advisers and to develop existing regional centres for the maintenance of hydrographic equipment and for training in hydrographic cartography.

Resolution 5

NOMENCLATURE OF UNDER-SEA FEATURE NAMES

The Conference,

Recognizing the importance of standardization of geographical names including those of under-sea features,

Noting the recent publication of the International Hydrographic Organization's Bathymetric Publication 0006 entitled "Standardization of Under-sea Feature Names" which gives a list of generic terms and definitions, guidelines and forms on which names should be proposed for new ocean bottom features,

1. Requests the International Hydrographic Organization to make available sufficient copies of the said document to the Economic Commission for Africa for distribution to each maritime country of the African region;

2. Recommends that the need to submit proposals for new nomenclature of under-sea feature names in accordance with BP 0006 should be brought to the attention of marine scientists and publishers of books, journals and nautical charts.

Annexe II

VOTE OF THANKS

The seventh United Nations Regional Cartographic Conference for Africa, meeting from 6 to 11 September 1989 in Ouagadougou, Burkina Faso,

Expresses its sincere appreciation and deep gratitude to His Excellency Comrade Captain Blaise Compaore, the President of the Popular Front and Head of State, and Head of Government of Burkina Faso, to the revolutionary people and Government of Burkina Faso for the warm and brotherly hospitality which facilitated the speedy and successful organization of the seventh United Nations Regional Cartographic Conference for Africa.

Further expresses its gratitude in particular for all the facilities provided to the participants, for the efficiency and for the quality of services rendered.

Proclaims its full satisfaction with the brotherly and cordial atmosphere under which the Conference was held, for the quality of expertise and openness of mind of the Chairman of the Conference who conducted the proceedings of the seventh United Nations Regional Cartographic Conference for Africa.

Requests the Chairman to transmit this vote of thanks to the President.

DONE IN OUAGADOUGOU
This 11th day of September 1989

## ANNEX III - ANNEXE III
## LIST OF DOCUMENTS - LISTE DES DOCUMENTS

| SYMBOL/COTE | |
|---|---|
| E/ECA/NRD/CART/124 | Provisional Agenda<br>Ordre du jour provisoire |
| E/ECA/NRD/CART/124/Add.1 | Annotated Provisional Agenda<br>Ordre du jour provisoire annoté |
| E/ECA/NRD/CART/125 | Status of Topographic mapping in Africa (Secretariat)<br>Situation de la Cartographie Topographique en Afrique (Secrétariat) |
| E/ECA/NRD/CART/126 | Report on the implementation of resolution of the Sixth United Nations Regional Cartographic Conference for Africa (Secretariat)<br>Rapport sur l'application des resolutions adoptee par la sixième conference cartographique régionale des nations unies pour l'Afrique (Secrétariat) |
| E/ECA/NRD/CART/127 | Africa's Economic Recovery Programme: Inputs from Remote Sensing into their implementation (Secretariat)<br>Contribution de la télédetection à l'execution des programme de redressement economique de l'Afrique (Secrétariat) |
| E/ECA/NRD/CART/128 | Education, Training and Research in Cartography and Remote Sensing for Developing Countries (Prof. O.O.Ayeni, RECTAS: Commissioned paper by Secretariat)<br>Education, Formation et recherche en matière de cartographie et télédetection |
| E/ECA/NRD/CART/129 | Satellite Geodesy and its application to the establishment of a common geodetic datum for Africa (Dr. Ing. C. Fezzani)<br>Rapport de la Geodesie spatiale à la mise en oeuvre rapid d'un system Geodesique unifie en Afrique (Dr. Ing. C. Fezzani) |

| | |
|---|---|
| E/ECA/NRD/CART/130 | Cartography and Remote Sensing Technology and Africa's Development in the 1990s (Mr. O. Adebekun: Commissioned paper by Secretariat) |
| | La cartographie, la télédetection et le développement de l'Afrique dans les annees 1990 |
| E/ECA/NRD/CART/131 | Hydrographic surveying and nautical charting for planning and development of marine resources in Africa (IHB) |
| | Levés hydrographiques et cartographie marine pour en Afrique (IHB) |
| E/ECA/NRD/CART/132 | Technical Assistance and the Transfer of technology (Secretariat) |
| | Assistance technique et transfert de technologie en cartographie et télédetection (Secrétariat) |
| E/ECA/NRD/CART/133 | Training facilities for overseas students in Great Britain in Survey and Mapping (U.K.) |
| E/ECA/NRD/CART/134 | OAU Report on the implementation of Resolutions of the Sixth United Nations Regional Cartographic Conference for Africa (OAU) |
| | Rapport de l'OUA sur la mise en oeuvre des resolutions et des recommandations de la sixième conference cartographique régionale des nations unies pour l'Afrique (OUA) |
| E/ECA/NRD/CART/135 | Line mapping from satellite in the Ordinance Survey (U.K.) |
| | Production de cartes au trait à partir de satellite à l'Ordinance survey (U.K.) |
| E/ECA/NRD/CART/136 | Report on Status of standardization of Geographical Names in the Africa East Division (Kenya) |
| | Rapport sur l'Etat d'avancement de la normalisation des noms geographiques dans la Division de l'Afrique de l'Est. (Kenya) |

E/ECA/NRD/CART/137

Use of landsat TM imagery for updating a 1;50,000 scale map of mount Elgon forest reserve in Uganda (RCSSMRS)

Utilisation des images des satellites landsat TM pour l'actualisation d'une carte à l'echelle de 1:50,000 de la reserve forestiere du mount Elgon en Ouganda (RCSSMRS)

E/ECA/NRD/CART/138

Use of doppler positioning method in cadastral surveys and boundary demarcations (RCSSMRS)

Positionnement par effet doppler dans les leves cadastraux et la delimitation de frontiers (RCSSMRS)

E/ECA/NRD/CART/139

The role of the Regional Centre for Services in Surveying, Mapping and Remote Sensing technology transfer in Eastern and Southern Africa (RCSSMRS)

Role du centre regional de services specialises dans le domaine des leves, des cartes et de télédetection dans le transfert des techniques de télédetection en Afrique (RCSSMRS)

E/ECA/NRD/CART/140

Repair and calibration of survey instruments in the Eastern and Southern African subregion (RCSSMRS)

Reparation et etalonnage des instruments topographique dans la sous-region de l'Afrique de l'Est et de l'Afrique Australe (RCSSMRS)

E/ECA/NRD/CART/141

Modern Trends in mapping (RCSSMRS)

Tendances modernes de la cartographie (RCSSMRS)

E/ECA/NRD/CART/142

Regional Machinery for the co-ordination of Linguistic Divisions of the United Nations Conference on the Standardization of Geographical names (Secretariat)

Mecanisme regional pour la coordination des divisions linguistique de la conference des nations unies sur la normalisation des noms geographiques (Secrétariat)

E/ECA/NRD/CART/143

Cartographic Activities in Ethiopia 1986-1989 (Ethiopia)

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| E/ECA/NRD/CART/144 | Cartographic Activities in Africa (United Kingdom) |
| E/ECA/NRD/CART/145 | The role of Regional Remote Sensing Centre, Ouahadougou in the subregion (CRTO) |
| E/ECA/NRD/CART/146 | Programme de formation en cartographie et télédetection au RECTAS (RECTAS) |
| E/ECA/NRD/CART/147 | A study of some Texture operations on digital spot image for automatic classification and compilation of thematic maps (RECTAS) |
| E/ECA/NRD/CART/148 | African Organization for Cartography and Remote Sensing Activity (AOCRS) |
| E/ECA/NRD/CART/149 | Evolution of Earth Sciences in the African Economical Context (AOCRS) |
| E/ECA/NRD/CART/150 | Rapport du Burkina Faso (Burkina Faso) |
| E/ECA/NRD/CART/151 | Cartographic and related activities in Kenya (Kenya) |
| E/ECA/NRD/CART/152 | Rapport National sur l'Etat de la cartographie et de la télédetection en Tunisie (Tunisie) |
| E/ECA/NRD/CART/153 | Equipement cartographie du territoire du Mali (Mali) |
| E/ECA/NRD/CART/154 | Progress Report 1986-1989 Department of Surveys and Lands (Botswana) |
| E/ECA/NRD/CART/155 | The Status of Cartographic Activities in the USA (USA) |
| E/ECA/NRD/CART/156 | Presentation du Cycle des Technicien Topographes Fonciers (IGN, France) |
| E/ECA/NRD/CART/157 | Cartographie Topographique des pays noeufs à partir de SPOT (IGN, France) |
| E/ECA/NRD/CART/158 | Communication du Sénégal (Sénégal) |
| E/ECA/NRD/CART/159 | Cartographic Technology and African Development in the 1990s (Mr. J.L. Okon Ekpenyong) |

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| E/ECA/NRD/CART/160 | Evolution of Vegetation Cover in the Liptako-Gourma Region, A case Study in the Namentenga, Burkina Faso (CRTO) |
| E/ECA/NRD/CART/161 | Efficacite des operations des divisions linguistiques en Afrique le passe et l'Avenir (Madagascar) |
| E/ECA/NRD/CART/162 | L'hydrographie Malagasy (Madagascar) |
| E/ECA/NRD/CART/163 | Rapport sur l'Etat d'avancement des travaux cartographiques à Madagascar (Madagascar) |
| E/ECA/NRD/CART/164 | The Role of Technical Assistance in Technology Transfer in Africa: The experience of the Regional Centre for Training in Aerospace Surveys (RECTAS) |
| E/ECA/NRD/CART/165 | Rapport Nationale (Algérie) |
| E/ECA/NRD/CART/166 | Automatisation de la carte topographique à l'Institut Nationale de Cartographie (Algérie) |
| E/ECA/NRD/CART/167 | Consortium African de traitement de données (Algérie) |
| E/ECA/NRD/CART/168 | Cartographic and Remote Sensing Activities in Ghana during the period 1986-1990 (Ghana) |
| E/ECA/NRD/CART/169 | Remote Sensing Coverage of Ghana (Ghana) |
| E/ECA/NRD/CART/170 | Communication de la delegation du Niger (Niger) |
| E/ECA/NRD/CART/171 | Cartographic Activities in Malawi 1984-1988 (Malawi) |

ANNEX IV - ANNEXE IV

LIST OF PARTICIPANTS - LIST DES PARTICIPANTS

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UNITED NATIONS MEMBER STATES - ETATS MEMBRE DES NATIONS UNIES

ALGERIA/ALGERIE

M. Halima-Mansou Ali, Directeur, Institut National de Cartographie, 123 Rue de Tripoli, Hussein-Dey, Alger (Head of Delegation)

M. Bouchibi Kheir, Ingénieur, 123 Rue de Tripoli, Hussein-Dey, Alger

M. Nacer Belgacem, Ingénieur, 123 Rue de Tripoli, Hussein-Dey, Alger

M. Touati Belkacem, 1er Conseiller Ambassade d'Algérie, Ouagadougou

M. Zerhouni Omar Farouk, Ingénieur, 123 Tue Tripoli, Hussein-Dey, Alger

BOTSWANA

Mr. B.B. H. Morebodi, Chief, Surveyor, P.B. 0037, Gaborone

BRAZIL/BRESIL

Mr. Alexandre Tagore Albuquerque, Head of Brazilian Continental Shelf Executive Committee, Directoria de Hidrografia E NOVOGACAO Ave. Borges de Medeiros 3535/1102 rio de Janeiro

BURKINA FASO

M. Bassole André, Secrétaire Général du Ministère de l'Equipement, Ministère de l'equipement, Ouagadougou (Head of Delegation)

M. Lohouara Bébakouéni, Directeur Général de l'IGB, 21 Av. de la Révolution. du 4 aout, Ouagadougou

Mr. Pallo François J. Pascal, Chef de departement géographie, B.O. 7021, Université de Ouagadougou

M. Dembele Ousmane, Directeur Technique, IGB, B.P. 7054, Ouagadougou

M. Ly Bassirou, Directeur Amenagement Territoire, Ministère Plan et coopération, B.O. 396, Ouagadougou

M. Ildoudou Jean-Baptiste, Conseiller des affaires étrangères, 01 B.P. 4070 Ouagadougou

M. Bagre Sidpassamdé Alain, Directeur de la Topographie, Direction Général de l'Urbanisme et de la Topographie, Ministère de l'Equipement, Ouagadougou

BURUNDI

M. Emile Murenguko, Directeur de la Cartographie à l'Institut géographie du Burundi, 78 Av. Stade Gitega, Bujumbura (Head of delegation)

M. S. Msabimana, Professeur, Enseignant à l'Université du Burundi, Bujumbura

FRANCE

M. Gateaud Jean, Ingénieur Géographe, B.O. 4022, 74 rue de paris 94220, Charenton

M. Louis Michel, Ingénieur Géographe, IGN, France

M. Vallet Jacques, Assistant Technique, IGN, France

M. Laporte Jean, Ingénieur en chef de l'Armement, Service Hydrographique de la Marine, SHOM-3 Av. Octave GREARD, 75200 Paris Naval

M. Nephtali Charles-Etienne, Directeur Regional, 39 rue Gay-Lussac, 75005, Paris

M. Jaloux Alain, Chef Departement Export, Coopération, 41 rue Parmentier 93100, Montreuil

M. Ribut François, Expert Télédetection, GDTA, 18 Av. EBELIN, Toulouse

GHANA

Mr. Iddrisu Abu, Acting Director of Surveys, Survey Department, P.O. Box 191 Accra (Head of delegation)

Mr. S.R. K. Loh, Chief Cartographer, Survey Department, P.O.Box 191, Accra

GUINEA/GUINEE

Mr. D. Kourouma, Chef Département Géodesie, IGN MEN, Conakry

KENYA

Mr. W.J. Absaloms, Director of Surveys, Republic of Kenya, P.O.Box 30046, Nairobi

LIBYA/LIBYE

M. Mohamed Al Ghariani, Chef de la section géodesique, Service Topographique Libyen, P.O.Box 600, Tripoli (Head of delegation)

M. Hassain Omar Abdurahim, Engineer, Surveying Department, P.O.Box 600, Tripoli

M. Sherif Abdurahim, Engineer, Surveying Department, P.O.Box 600, Tripoli

MADAGASCAR

Mr. Andrianarivo Edmond, Chef de Département Cartographie, Photogrammétrie, Institute National de Géodesie et Cartographie, B.P. 323, Antananarivo

MALAWI

Mr. P. Liuma, Assistant Commissioner for Surveys, OPC/Surveys, P.O.Box 349, Blantyre

MALI

Mr. Togola Siriba, Directeur Adjoint Cartographie-Topographie, Bamako (Head of delegation)

Mr. Guindo Abdoulaye, Chercheur Forestier, IMRZEH, B.P. 1704, Bamako

Mr. Coulibaly Ibrahim, Professor de Topographie ENI, B.P. 242, Bamako

NIGER

M. Waziri Maman, Directeur de la Topographie, Direction de la Topographie, B.P. 250, Niamey

NIGERIA

Mr. J. Ologun, Chief Scientific Officer, Federal Ministry of Science and Technology, P.M.B. 12793, Lagos

Mr. J.L. Okon Ekpenyong, University of Lagos, P.O.Box 135, Yaba, Lagos

SENEGAL

M. Gueye Abdoul Aziz, Chef de la Division cartographique, Dakar

TANZANIA

Mr. Lazarus Mollel, Director of Surveys and Mapping, P.O.Box 9201, Dar-es-Salaam

TOGO

Mr. Burluraux Koffi, Chef de la Division Cartographie à la Direction de la cartographie Nationale du Cadastre, B.P. 500, Lomé

TUNISIA/TUNISIE

Dr. Ing. Chedly Fezzani, Ingénieur Général OTC, Cité Olympique, B.P. 1080 Tunis Cedex (Head of delegation)

Colonel Gammar Mohamed, Directeur Général, Centre National de télédetection Base Militaire, B.P. 2045, Tunis

UNITED KINGDOM/ROYAUME UNI

Mr. J. Price, Manager, Overseas Surveys Directorate, C/O Ordinance Survey Southampton (Head of delegation)

Mr. B.J. Karalus, Technical Director CLYDE Surveys Ltd. Reform Road, Maidenhead, Berks, England, SL6 8BU

Mr. Leppard Norman, Deputy Director, MCE RE Elmwood Ave. Feltham Middlesex

UNITED STATES OF AMERICA/ETATS UNIS D'AMERIQUE

Mr. F. Maloney, Chief, Aeronautical Chart Division, U.S. Department of Commerce, NOAA, Washington, D.C. (Head of delegation)

Mr. R. Mullen, Associate Chief, National Mapping, U.S. Geological Survey M.9 516, 11201 Sunrise Valley Drive, Reston, VA 22192

Mr. E.W. Phillips, Deputy Director, Programmes (DMA), 2303 Cavesson Court Herndon VA 22071

Mr. J. Anspaugh, Supervisory Cartographer, Department of State, Washington D.C. 20520

Mrs. Alyce Mullen, 3103 Tienholm Dr. OAKTON VA.

INTERNATIONAL/INTERGOVERNMENTAL ORGANIZATIONS
ORGANISATIONS INTERNATIONALES/INTERCOUVERNEMENTALES

AFRICAN DEVELOPMENT BANK (ADB)
BANQUE AFRICAINE DE DEVELOPPEMENT

Mr. Shashi Desai, Division Chief, Public Utilities, ADB, 01 B.P. 1387 Abidjan, Côte d'Ivoire

INTERNATIONAL FEDERATION OF SURVEYORS (FIG)
FEDERATION INTERNATIONALE DES GEOMETRES

Sir. David Haslam, President of the Directing Committee, International Hydrographic Bureau, 7 Av. President J.F. Kennedy, Monaco MC 98000

Mr. Alfredo Civetta, Directeur Bureau Hydrographique International, 7 Av. President J.F. Kennedy, Monaco, MC 98000

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)
PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT (PNUD)

Mr. Bernard Ntegeye, Représentant Résident, a.i. B.P. 575, Ouagadougou

AFRICAN ORGANIZATION FOR CARTOGRAPHY AND REMOTE SENSING (AOCRS)
ORGANISATION AFRICAINE DE CARTOGRAPHIE ET DE TELEDETECTION (OACT)

Mr. Mohamed Boualga, Secretary-General, AOCRS, B.P. 102 Hussein-Dey, Alger

REGIONAL REMOTE SENSING CENTRE OUAGADOUGOU (CRTO) BURKINA FASO
CENTRE REGIONAL DE TELEDETECTION

Mr. L. Okio, Directeur Général, CRTO, B.P. 1762, Ouagadougou

Mr. Nouh Ahmadou Sow, B.P. 1762, CRTO, Ouagadougou

Mr. S.S. Bernard Donyuo, Cartographer, CRTO, B.P. 1762 Ouagadougou

Dr. J. Okang, Director of Training, CRTO, B.P. 1762, Ouagadougou

REGIONAL CENTRE FOR TRAINING IN AEROSPACE SURVEYS (RECTAS)
CENTRE REGIONAL DE FORMATION AUX TECHNIQUES DES LEVES AEROSPATIAUX

Mr. A. Soumare, Directeur-Adjoint, RECTAS, P.M.B. 5545, Ile-Ife, Nigeria

Mr. P. Kibora, Enseignant Cartographie, RECTAS, P.M.B. 5545, Ile-Ife, Nigeria

REGIONAL CENTRE FOR SERVICES IN SURVEYING, MAPPING AND REMOTE SENSING (RCSSMRS)
CENTRE REGIONAL DE SERVICES SPECIALISES DANS LE DOMAINE DES LEVES, DES CARTES ET DE LA TELEDETECTION

Mr. S. Okec, Acting Director-General, RCSSMRS, P.O.Box 18118, Nairobi, Kenya

SECRETARIAT OF THE CONFERENCE

SECRETARIAT DE LA CONFERENCE

Professor Adebayo Adedeji, United Nations Under-Secretary-General and Executive Secretary of ECA

Mr. Funso Olujohungbe, Executive Secretary of the Conference

Mr. E. Kasaija Nyakana, Technical Secretary of the Conference

Mr. Ali Haribou Scientific and Technology Advisor

Mr. Olumuyiwa Adebekun, Surveying and Mapping Consultant, MUYBEX GEOSURVEYS IKEJA LAGOS NIGERIA, 30A Talabi Street, P.O.Box 7838, Ikeja, Lagos, Nigeria (Consultant to the Conference)

Mr. R. Apedo-Amah. Chief Conference Services, UNECA